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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,045	01/31/2002	Nicole Brandenburg	020506-US	3929

7590 03/22/2005

Law Offices of Karl Hormann  
86 Sparks Street  
Cambridge, MA 02138-2216

EXAMINER
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DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/066,045	BRANDENBURG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Mehrdad Dastouri	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/7/2002</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed March 7, 2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Only the even pages of the IDS publication "cc" have been submitted.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Faugeras et al. (Real Time Correlation-Based Stereo: Algorithm, Implementation and Application).

Regarding Claim 1, Faugeras et al. disclose a method of analyzing in real time the correspondence of image characteristics in corresponding video images which, taking into consideration selected optimizing criteria, proceeds from the digital input image data for defining a correspondence vector field and which is based on the hybrid recursion method which includes a block recursion with an integrated pixel recursion for

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detecting a corrected block vector as the correspondence vector of the given actual pixel, characterized by the fact that

for detecting a disparity vector field as correspondence vector field the input image data are generated on the basis of the two video images of a stereoscopic image pair generated by a multiple camera system of arbitrary stereo geometry (Figure 2; Section 2.3), whereby the image characteristics in the two video images of the stereoscopic image pair correspond to each other by way of a special displacement dependent upon the depth of the associated image characteristic in space (Figure 4; Section 2.3), and that for satisfying the epipolar condition for clamping the corrected block vector to the given epipolar line of the stereo geometry, the parameters of the stereo geometry are included in the correction of the block vector (Figure 3; Section 2.3).

Regarding Claim 2, Faugeras et al. further disclose the method according to Claim 1, characterized by the fact that

the input image data are generated as transformed equivalents from the two video images of a stereoscopic image pair (Page 12, Section 2.3, second paragraph; Figure 2).

Regarding Claim 3, Faugeras et al. further disclose the method according to Claim 2,

characterized by the fact that

the transformed equivalents are generated by rectification of the stereoscopic image pair (Page 12, Section 2.3, second Paragraph; Figure 3).

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Regarding Claim 4, Faugeras et al. further disclose the method according to Claim 3, characterized by the fact that

differently transformed equivalents of a stereoscopic image pair are processed as input image data in the block recursion and in the integrated pixel recursion (Pages 16-20; Figures 7 and 8).

Regarding Claim 5, Faugeras et al. further disclose the method according to Claim 4, characterized by the fact that

the optimizing criterion selected in the block recursion is the displaced block difference and the optimizing criterion selected in the pixel recursion (PRC) is the displaced pixel difference (Pages 16-20; Figures 7 and 8).

Regarding Claim 6, Faugeras et al. further disclose the method according to Claim 5,

characterized by the fact that detection of the disparity vector of the given actual pixel is limited to a one-dimensional search space by parametrization of the epipolar lines of the stereo geometry (Page 16, Section 3.2).

Regarding Claim 7, Faugeras et al. further disclose the method according to Claim 6, characterized by the fact that

that the disparity analysis is restricted to the limited number of pixels of a closed video object (Sections 2.2, 2.2.1 and 3.2; Figure 7).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faugeras et al. (Real Time Correlation-Based Stereo: Algorithm, Implementation and Application) in view of Schreer et al. (A Comparative Study on Disparity Analysis Based on Convergent and rectified Views).

Regarding Claim 8, Faugeras does not explicitly disclose the method according to Claim 7, characterized by the fact that that the in the block recursion the individual blocks are processed independently of direction.

Schreer et al. disclose a comparative study on disparity analysis of stereo systems wherein in a hierarchical block-matching approach, the individual blocks are processed independently of direction (Section 3, the Disparity estimation Algorithm; Section 6, Conclusion).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Faugeras's invention according to the teachings of Schreer to process the individual blocks independently of direction because it will reduce additional computational load for extra processes (Schreer, Conclusion).

Regarding Claim 9, Schreer et al. further disclose the method according to Claim 8, characterized by the fact that

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that initially the blocks are processed for all even-numbered or uneven-numbered display lines and that in consecutive display lines the processing direction changes and that in consecutive stereoscopic image pairs the block recursions alternately starts in the uppermost and lowest display line (Section 3; Figures 2, 3).

Regarding Claim 10, Faugeras disclose the method according to Claim 9, characterized by the fact that

processing is implemented strictly horizontally or strictly vertically (Figures 7 and 8; Pages 16-20).

#### ***Contact Information***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).

Mehrdad Dastouri  
Primary Examiner  
Art Unit 2623  
March 19, 2005

**MEHRDAD DASTOURI**  
**PRIMARY EXAMINER**

*Mehrdad Dastouri*